

ABSTRACT

Solid fine particles which contain a magnesium atom, an aluminum atom and a C_{1-20} alkoxy group simultaneously, are insoluble in a hydrocarbon solvent, and have an average particle diameter of 3 to 80 μm , and an olefin polymerization catalyst containing the solid fine particles and a transition metal compound in the groups 3 to 11 in the periodic table, exhibit a very high olefin polymerization activity without combination with an expensive organoaluminum oxy compound or organoboron compound and maintains a high activity in polymerization for a long time, and an olefin polymer excellent in powdery properties can be produced by using the olefin polymerization catalyst. The transition metal compound in the groups 3 to 11 in the periodic table includes a transition metal compound having a ligand containing two or more atoms selected from a boron atom, a nitrogen atom, an oxygen atom, a phosphorus atom and a sulfur atom.